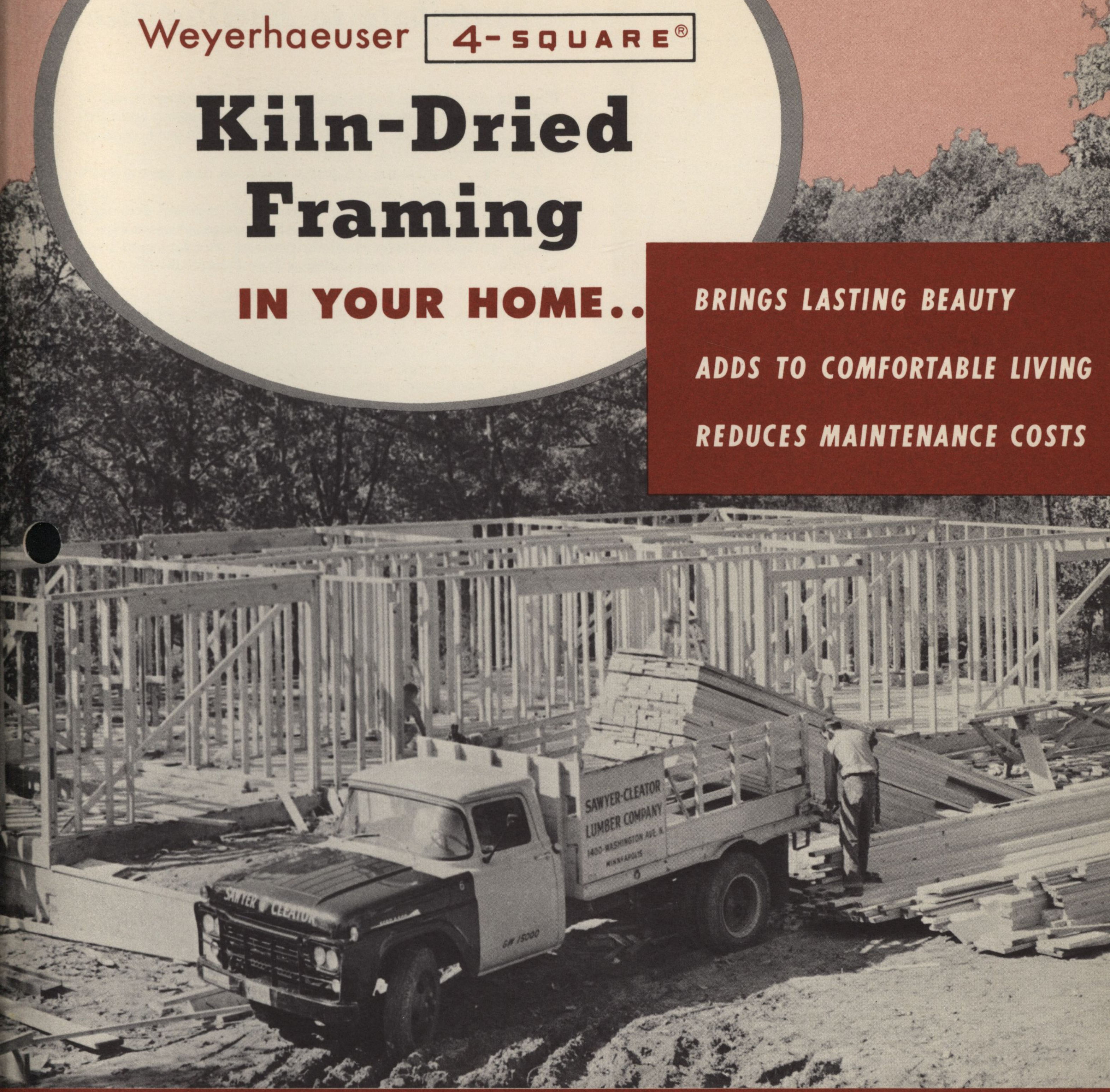
Why
Weyerhaeuser 4-SQUARE®
Kiln-Dried Framing
IN YOUR HOME..

BRINGS LASTING BEAUTY

ADDS TO COMFORTABLE LIVING

REDUCES MAINTENANCE COSTS



Weyerhaeuser Sales Company
FIRST NATIONAL BANK BUILDING • ST. PAUL 1, MINNESOTA

Why Lumber is

KILN-DRIED

Kiln-drying lumber pre-conditions it for the finest service in homes and buildings.

As we all know, trees in their natural state are living, growing things made up of millions of tiny cells and comprised largely of water.

Lumber cut from a tree may have moisture content* of as much as 115% or more. This water is contained in the wood in two forms: 1. Free water (within the openings of the cells). 2. Moisture in the cell walls.

As lumber dries, water leaves the wood in two stages:

1. The free water evaporates, leaving water only in the cell walls; the cell structure does not change.

2. The water leaves the cell walls (as the moisture content is reduced below the "saturation point" of about 25%). As this occurs, the cells contract, harden and stiffen. The lumber gains strength but loses size (shrinks). See below.

Kiln-drying in great ovens (kilns) is the modern, scientific system of pre-conditioning lumber. Under carefully controlled conditions, the moisture content of lumber for framing is reduced to an average of 19%.

Any undesirable characteristics which may develop during the drying process are "graded out," thus assuring lumber uniform** in quality for uniform high performance in use. Then, **after** pre-conditioning, the lumber is cut to exact size and smoothly surfaced.

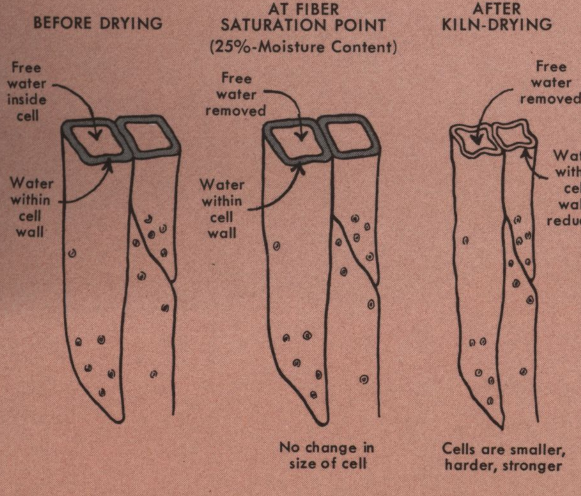
The result: Weyerhaeuser 4-Square kiln-dried lumber is factory pre-seasoned lumber of maximum strength and maximum serviceability to builders and home owners.

---

*—Moisture content is the weight of the water contained in the wood expressed in percentage of the weight of the oven-dry wood.

**—Weyerhaeuser 4-Square Lumber is produced from several species and grades to meet use needs. Uniformity refers to consistent quality and serviceability within a given grade and species.

HOW WOOD CELLS CHANGE AS WATER IS REMOVED



These hidden values of

Weyerhaeuser 4-SQU

contribute to Lasting Beauty,

The beauty of your home is more than skin deep. Lasting value and low-maintenance cost stems from hidden strength of the framework as well as from the inside and outside wall coverings.

The very backbone of your home is the framework (rafters, studs and joists). . .

Weyerhaeuser 4-Square kiln-dried lumber framing (coupled with proper construction, of course) provides a strong, unified framework all-important to a home of lasting value, enjoyable living and pride of ownership.

1. Kiln-Dried Framing Lumber Is Stronger

Charts on the back page show the greater strength of kiln-dried lumber in four important properties . . . strength in bending, stiffness, strength in shear, and crushing strength. This added strength fortifies the vital "backbone" framework of your home.

2. Extra Strength When Needed Most

In general, the strength of framework is most important immediately after construction . . . to prevent or reduce such costly failures as plaster cracks and opening of joints in interior finish which may occur during early months of occupancy.

3. Greater Uniformity Of Framework

a. Kiln-dried lumber is *surfaced after drying* and, therefore, is smoother and uniform in size.

b. The relatively uniform moisture content (average 19%) of kiln-dried lumber assures that the framing functions together for greater strength and stability.

4. Kiln-Dried Framing Helps Prevent Plaster Cracks, Sticking Windows, Squeaky Floors

These annoyances may result from a number of causes including uneven shrinkage of framing members. The extra strength and unity of kiln-dried framing members functioning together guards against or minimizes distortions that cause maintenance difficulties.

5. Kiln-Dried Framing Helps Prevent "Popped Nails" In Finished Walls

Kiln-dried lumber grips nails securely to bring lasting beauty of finished walls. Nails fastening plasterboard stay in place and out of sight.

6. Kiln-Dried Framing Gives Greater Owner Satisfaction

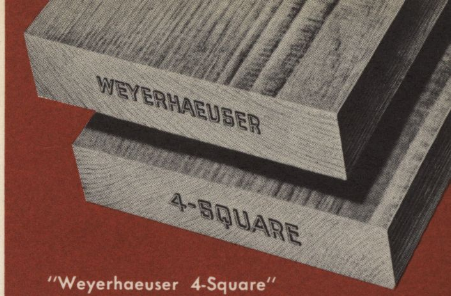
There is true enjoyment and pride in knowing that the very backbone—the structure of your home—is scientifically conditioned (kiln-dried) at the factory for maximum value and performance.

7. Better Construction With Kiln-Dried Framing Makes A Home More Liveable

Kiln-dried framework gives a sturdy feel and comfortable livability to a home. Windows open and close more easily, doors swing freely and floors remain level. Crackling walls, squeaking floors and other "haunts" don't plague well-built kiln-dried homes.

RE® KILN-DRIED FRAMING

omfortable Living and Low Maintenance



"Weyerhaeuser 4-Square" on lumber ends means kiln-dried and consistent quality.

8. Floors Are Sturdy And Solid
The greater strength, the greater uniformity, the greater dimensional stability of kiln-dried floor framing (joists) combine to minimize "floor bounce" and provide the feeling of sturdiness and permanence.

9. Less Maintenance Cost
Because kiln-dried framing helps prevent sticking doors, "nail pops", plaster cracks and sticking windows, it reduces repairs and maintenance.

10. Overall Economy
Any additional first cost of kiln-dried framing is negligible . . . a fraction of one per cent. Kiln-dried framing tends to lower overall costs by saving building time and reducing maintenance.

11. Kiln-Dried Framing Looks Better, Is Better
Kiln-dried framing looks better because any stain-causing fungi are destroyed by factory conditioning. Kiln-dried lumber is smoother, stays cleaner. Doesn't every proud home owner point to the framing overhead in the basement as the mark of a well-built home?

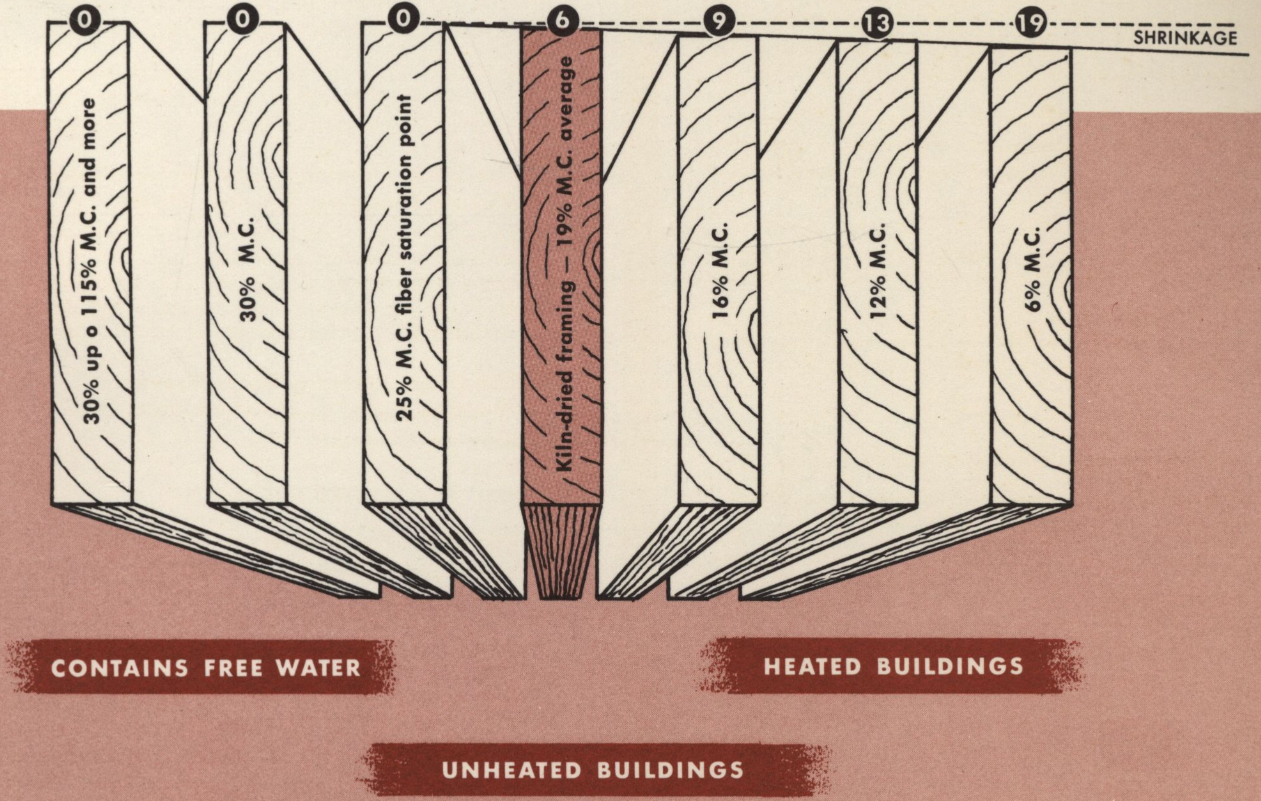
12. Once Kiln-Dried, Advantages Continue
The advantages of kiln-dried lumber are maintained even if occasional surface wetting occurs such as might be encountered during construction. This surface water does not penetrate deeply because of the "closed pore" cell structure. The kiln-dried framing continues to function together for a strong, rigid backbone.

13. You Get What You Buy
Kiln-dried lumber is graded *after* seasoning. Any defects that develop from drying are graded out at the factory.

14. Assured Quality
Weyerhaeuser 4-Square, the best known name in lumber, branded on the ends is your assurance of well-manufactured, kiln-dried lumber of uniform quality.

Relation of Shrinkage to Moisture Content of Wood

SHRINKAGE IN 32nds OF AN INCH



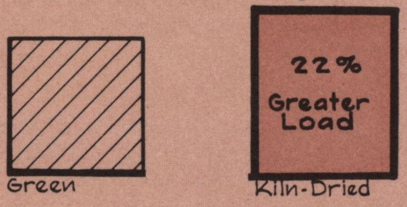
Shrinkage does not start until all free water is gone. Shrinkage starts at about 25% moisture content. It is caused by moisture leaving the cell walls. Moisture content of lumber in use is governed by the temperature and relative humidity; this varies according to locality, use within buildings and so on.

THE GREATER STRENGTH OF

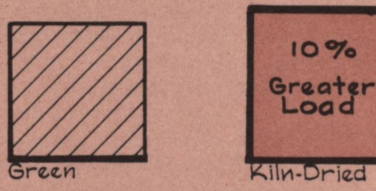
Kiln-Dried Framing Lumber

adds so much to the lasting value of your home

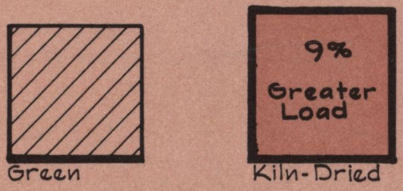
STRENGTH in BENDING
Resistance to Breaking . . . . .



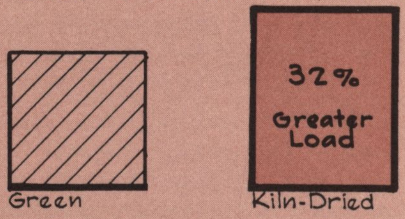
STRENGTH in HORIZONTAL SHEAR
Resistance to Splitting under Load . .



STIFFNESS
Resistance to Deflection

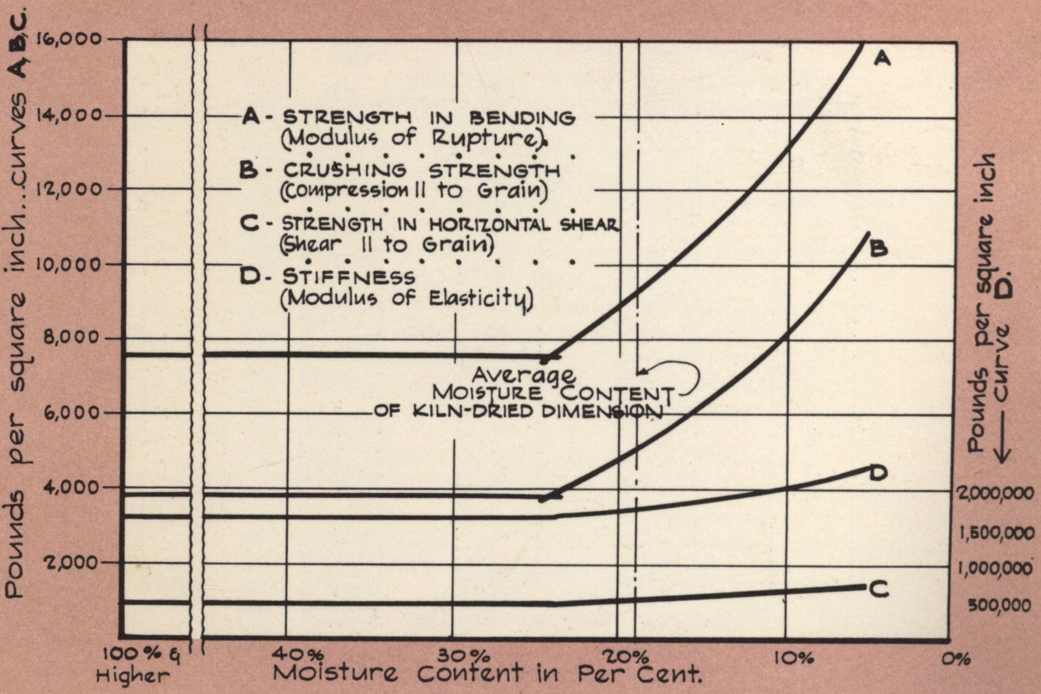


CRUSHING STRENGTH
Studs & Posts . . . .



GREEN: MOISTURE CONTENT ABOVE 25%.... UP TO 115% AND HIGHER.
KILN-DRIED: AVERAGE MOISTURE CONTENT 19%.

STRENGTH PROPERTIES INCREASE AS LUMBER DRIES



Graph based on Douglas Fir using Forest Products Laboratory (U.S. Department of Agriculture) literature.

NOTE: Moisture content is the weight of water contained in wood expressed as a percentage of the weight of the oven-dry wood. Weyerhaeuser 4-Square kiln-dried framing lumber is scientifically dried to an average moisture content of 19%.

SP-25 PRINTED IN U.S.A. 12-58

Digitized by: The Association for Preservation Technology
From the collection of: Floyd Mansberger, Fever River Research
www.IllinoisArchaeology.com